1. In a computer system that has access to interlaced representation of video, a method of converting the interlaced representation of the video into a progressive representation of the video by converting a first temporal field and a subsequent second temporal field of interlaced video into a progressive frame so as to provide a high quality progressive frame with relatively little processing resources even if there is motion between the first temporal field and the second temporal field, the method comprising the following:

an act of replicating one of the first temporal field or the second temporal field to generate half of the progressive frame;

an act of estimating a correlation between a pixel of the other non-replicated temporal field and at least one vertically adjacent pixel of the replicated temporal field; and

an act of assigning a value to a subject pixel in the other half of the progressive frame, the subject pixel corresponding to the position of the pixel of the non-replicated temporal field, wherein the value is based on the correlation.

2. A method in accordance with Claim 1, further comprising:

an act of repeating the act of estimating a correlation and the act of assigning a value for each of the remaining pixels in the non-replicated temporal field:

3. A method in accordance with Claim 1, wherein the act of assigning a value to a subject pixel in the other half of the progressive frame comprises the following:

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an act of assigning the value based on an interpolation between scan line interpolation and field merging depending on the correlation, wherein a higher correlation tends the value towards field merging and lower correlation tends the value towards scan line interpolation.

4. A method in accordance with Claim 1, wherein the act of assigning the value based on an interpolation between scan line interpolation and field merging comprises the following:

an act of determining a correlation value between zero and one inclusive that represents the correlation between the pixel of the non-replicated temporal field and the at least one vertically adjacent pixel of the replicated temporal field, wherein the act of assigning a value based on an interpolation comprises the following:

an act of multiplying the correlation value by the value that would be obtained by pure field merging; and

an act of multiplying one minus the correlation value by the value that would be obtained by pure scan line interpolation.

5. A method in accordance with Claim 4, wherein the act of multiplying one minus the correlation value by the value that would be obtained by pure scan line interpolation comprises the following:

an act of determining the value that would be obtained by pure scan line interpolation.

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6. A method in accordance with Claim 5, wherein the act of determining the value that would be obtained by pure scan line interpolation comprises the following:

an act of averaging the value of the upper pixel in the replicated field that is immediately above the output position with the value of the lower pixel in the replicated field that is immediately below the output position.

7. A method in accordance with Claim 1, wherein the act of estimating a correlation comprises the following:

an act of determining the correlation based on pixel values of field merged representations of the first and second temporal fields in a vertical column that includes the position of the subject pixel of the second temporal field.

8. A method in accordance with Claim 7, wherein the vertical column is five pixels in height, two pixels being above the subject pixel, and two pixels being below the subject pixel.

9. A method in accordance with Claim 7, wherein the vertical column in three pixels in height, one pixel being above the subject pixel, and one pixel being below the subject pixel.

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10. In a computer system that has access to interlaced representation of video, a method of converting the interlaced representation of the video into a progressive representation of the video by converting a first temporal field and a subsequent second temporal field of interlaced video into a progressive frame so as to provide a high quality progressive frame with relatively little processing resources even if there is motion between the first temporal field and the second temporal field, the method comprising the following:

an act of replicating one of the first temporal field or the second temporal field to generate half of the progressive frame; and

a step for generating the other half of the progressive frame so that the value of each pixel is adaptively determined on a per pixel basis depending on the vertical correlation in the first and second temporal fields at the position of the pixel.

11. A method in accordance with Claim 10, wherein the step for generating the other half of the progressive frame comprises the following:

an act of estimating a correlation between a pixel of the other non-replicated temporal field and at least one vertically adjacent pixel of the replicated temporal field; and

an act of assigning a value to a subject pixel in the other half of the progressive frame, the subject pixel corresponding to the position of the pixel of the non-replicated temporal field, wherein the value is based on the correlation.

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12. A computer program product for use in a computer system that has access to interlaced representation of video, the computer program product for implementing a method of converting the interlaced representation of the video into a progressive representation of the video by converting a first temporal field and a subsequent second temporal field of interlaced video into a progressive frame so as to provide a high quality progressive frame with relatively little processing resources even if there is motion between the first temporal field and the second temporal field, the computer program product comprising a computer-readable medium having stored thereon computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

an act of replicating one of the first temporal field or the second temporal field to generate half of the progressive frame;

an act of estimating a correlation between a pixel of the other non-replicated temporal field and at least one vertically adjacent pixel of the replicated temporal field; and

an act of assigning a value to a subject pixel in the other half of the progressive frame, the subject pixel corresponding to the position of the pixel of the non-replicated temporal field, wherein the value is based on the correlation.

13. A computer program product in accordance with Claim 12, wherein the computer-readable medium is a physical storage medium.

14. A computer program product in accordance with Claim 12, wherein the computer-readable medium further has stored thereon computer-executable instructions

which, when executed by one or more processors, cause the computer system to performing the following:

an act of repeating the act of estimating a correlation and the act of assigning a value for each of the remaining pixels in the non-replicated temporal field.

15. A computer program product in accordance with Claim 12, wherein the computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the act of assigning a value to a subject pixel in the other half of the progressive frame comprise computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

an act of assigning the value based on an interpolation between scan line interpolation and field merging depending on the correlation, wherein a higher correlation tends the value towards field merging and lower correlation tends the value towards scan line interpolation.

16. A computer program product in accordance with Claim 12, wherein the computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the act of assigning the value based on an interpolation between scan line interpolation and field merging comprises computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

an act of determining a correlation value that represents the correlation between the pixel of the non-replicated temporal field and the at least one vertically

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adjacent pixel of the replicated temporal field, wherein the act of assigning a value based on an interpolation comprises the following:

an act of multiplying the correlation value by the value that would be obtained by pure field merging; and

an act of multiplying one minus the correlation value by the value that would be obtained by pure scan line interpolation.

17. A computer program product in accordance with Claim 16, wherein the computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the act of multiplying one minus the correlation value by the value that would be obtained by pure scan line interpolation comprise computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

an act of determining the value that would be obtained by pure scan line interpolation.

18. A computer program product in accordance with Claim 17, wherein the computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the act of determining the value that would be obtained by pure scan line interpolation comprise computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

an act of averaging the value of the upper pixel in the replicated field that is immediately above the output position with the value of the lower pixel in the replicated field that is immediately below the output position.

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19. A computer program product in accordance with Claim 12, wherein the computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the act of estimating a correlation comprise computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

an act of determining the correlation based on pixel values of field merged representations of the first and second temporal fields in a vertical column that includes the position of the subject pixel of the second temporal field.

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20. In a computer system that has access to interlaced fields of video, a method of converting three temporally adjacent input fields of interlaced video into two output fields of interlaced video, the method comprising the following:

an act of replicating the second temporal input field to reproduce a first of the output fields;

for a given output pixel corresponding to an output position of the second output field, an act of using at least one pixel of the second temporal input field that is vertically adjacent to the output position of the second output field to determine which of the first temporal input field and third temporal input field more closely correlates to the second temporal input field at the output position; and

an act of assigning a value to the output pixel based on the correlation between the first temporal input field and the second temporal input field, and between the third temporal input field and the second temporal input field corresponding to the output position.

21. A method in accordance with Claim 20, wherein the act of using at least one pixel of the second temporal input field that is vertically adjacent to the output position of the second output field to determine which of the first temporal input field and third temporal input field more closely correlates to the second temporal input field at the output position comprises the following:

an act of accessing an upper pixel of the second temporal input field which is directly above the output position of the second output field;

an act of accessing a lower pixel of the second temporal input field that is directly below the output position of the second output field;

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an act of interpolating a value based on the values of the upper pixel and the lower pixel; and

an act of using the interpolated value to determine which of the first temporal input field and the third temporal input field more closely correlates to the second temporal input field at the output position.

22. A method in accordance with Claim 21, wherein the act of interpolating a value based on the values of the upper pixel and the lower pixel comprises the following:

an act of averaging the value of the upper pixel with the value of the lower pixel to generated the interpolated value.

23. A method in accordance with Claim 21, wherein the act of using the interpolated value to determine which of the first temporal input field and the third temporal input field more closely correlates to the second temporal input field comprises the following:

an act of comparing the interpolated value to the value of the pixel in the first temporal input field that correlates to the output position; and

an act of comparing the interpolated value to the value of the pixel in the third temporal input field that correlates to the output position.

24. A method in accordance with Claim 21, wherein the act of assigning a value to the output pixel based on the correlation between the first temporal input field and the second temporal input field, and between the third temporal input field and the second temporal input field corresponding to the output position comprises the following:

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an act of tending the value of the output pixel more towards the value of the pixel in whichever of the first temporal input field or third temporal input field at the output position is closer to the interpolated value.

25. A method in accordance with Claim 24, wherein the act of tending the value of the output pixel comprises the following:

an act of keeping track of a blending factor that is used to determine how much of the value of the pixel in the first temporal input field at the output position, and how much of the value of the pixel in the third temporal input field at the output position is weighed in assigning the value to the output pixel.

26. A method in accordance with Claim 25, further comprising the following:

an act of changing the value of the blending factor in one direction if the interpolated value is closer to the value of the pixel in the first temporal input field at the output position;

an act of changing the value of the blending factor in the opposite direction if the interpolated value is closer to the value of the pixel in the third temporal input field at the output position; and

an act of using the changed blending factor when analyzing the next horizontally adjacent output pixel.

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27. A computer program product for use in a computer system that has access to interlaced fields of video, the computer program product for implementing a method of converting three temporally adjacent input fields of interlaced video into two output fields of interlaced video, the computer program product comprising a computer-readable medium having stored thereon computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

an act of replicating the second temporal input field to reproduce a first of the output fields;

for a given output pixel corresponding to an output position of the second output field, an act of using at least one pixel of the second temporal input field that is vertically adjacent to the output position of the second output field to determine which of the first temporal input field and third temporal input field more closely correlates to the second temporal input field at the output position; and

an act of assigning a value to the output pixel based on the correlation between the first temporal input field and the second temporal input field, and between the third temporal input field and the second temporal input field corresponding to the output position.

28. A computer program product in accordance with Claim 27, wherein the computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the act of using at least one pixel of the second temporal input field that is vertically adjacent to the output position of the second output field to determine which of the first temporal input field and third temporal input field more closely correlates to the second temporal input field at the output position comprise

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computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

an act of accessing an upper pixel of the second temporal input field which is directly above the output position of the second output field;

an act of accessing a lower pixel of the second temporal input field which is directly below the output position of the second output field;

an act of interpolating a value based on the values of the upper pixel and the lower pixel; and

an act of using the interpolated value to determine which of the first temporal input field and the third temporal input field more closely correlates to the second temporal input field at the output position.

29. A computer program product in accordance with Claim 28, wherein the computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the act of interpolating a value based on the values of the upper pixel and the lower pixel comprise computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

an act of averaging the value of the upper pixel with the value of the lower pixel to generated the interpolated value.

30. A computer program product in accordance with Claim 28, wherein the computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the act of using the interpolated value to determine which of the first temporal input field and the third temporal input field more closely correlates to

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the second temporal input field comprise computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

an act of comparing the interpolated value to the value of the pixel in the first temporal input field that correlates to the output position; and

an act of comparing the interpolated value to the value of the pixel in the third temporal input field that correlates to the output position.

31. A computer program product in accordance with Claim 28, wherein the computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the act of assigning a value to the output pixel based on the correlation between the first temporal input field and the second temporal input field, and between the third temporal input field and the second temporal input field corresponding to the output position comprise computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

an act of tending the value of the output pixel more towards the value of the pixel in whichever of the first temporal input field or third temporal input field at the output position is closer to the interpolated value.

32. A computer program product in accordance with Claim 31, wherein the computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the act of tending the value of the output pixel comprise computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

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an act of keeping track of a blending factor that is used to determine how much of the value of the pixel in the first temporal input field at the output position, and how much of the value of the pixel in the third temporal input field at the output position is weighed in assigning the value to the output pixel.

33. A computer program product in accordance with Claim 32, wherein the computer-readable medium further has stored thereon computer-executable instructions which, when executed by one or more processors, cause the computer system to perform the following:

an act of changing the value of the blending factor in one direction if the interpolated value is closer to the value of the pixel in the first temporal input field at the output position;

an act of changing the value of the blending factor in the opposite direction if the interpolated value is closer to the value of the pixel in the third temporal input field at the output position; and

an act of using the changed blending factor when analyzing the next horizontally adjacent output pixel.

34. The computer program product in accordance with Claim 27, wherein the computer-readable medium is a physical storage medium.

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35. In a computer system that has access to interlaced fields of video, a method of converting three temporally adjacent input fields of interlaced video into two output fields of interlaced video for improved processing of sudden difference video, the method comprising the following:

an act of replicating the second temporal input field to reproduce a first of the output fields; and

a step for generating the second output field pixel-by-pixel considering similarities between temporal input fields.

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